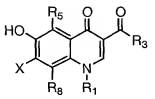
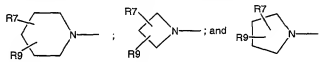
What is claimed is:

1. A compound having the following formula:



wherein:

(a) X is selected from the group consisting of



;

(b) R1 is selected from the group consisting of C_3 to about C_5 cycloalkyl, C_1 to about C_2 alkanyl, C_2 to about C_3 linear alkenyl, C_3 to about C_4 branched alkanyl or alkenyl, all such alkyl or cycloalkyl moieties being unsubstituted or substituted with from 1 to about 3 fluoro; and phenyl, unsubstituted or substituted with from 1 to about 3 fluoro, or with one hydroxy in the 4-position;

(c) R3 is hydrogen or hydroxy;

(d) R5 is selected from the group consisting of hydrogen, hydroxy, amino, halo, C_1 to about C_2 alkanyl, C_2 alkenyl, and methoxy, all such alkyl and methoxy moieties being unsubstituted or substituted with from 1 to about 3 fluoro;

(e) R8 is selected from the group consisting of fluoro, chloro and bromo;

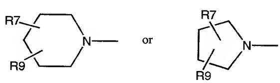
(f) R7 is amino which is attached to a ring carbon of X which is not adjacent to the ring nitrogen, the amino being unsubstituted or substituted with one or two C_1 to about C_3 alkanyl; or aminoalkanyl which is attached to any ring carbon of X and is C_1 to about C_3 alkanyl substituted with one amino, the amino being unsubstituted or substituted with one or two C_1 to about C_3 alkanyl;

(g) each R9 is independently selected from the group consisting of hydrogen, C_1 to about C_4 alkanyl, C_2 to about C_6 alkenyl or alkynyl, and a C_3 to about C_6 fused or spirocycle alkyl ring; or one R9 may optionally be selected from the group consisting of hydroxy, C_1 to about C_4 alkoxy, aryl and heteroaryl, all other R9 being hydrogen; all alkyl and aryl portions of R9 moieties being unsubstituted or substituted with one hydroxy or with from 1 to about 3 fluoro; and

(h) a R7 moiety described in (f) and a R9 moiety described in (g) may optionally be connected thus forming a fused or spirocycle ring with the N-containing ring shown in (a), the fused or spirocycle ring comprising from 2 to about 5 ring carbons and 0 or 1 ring nitrogen;

or an optical isomer, diastereomer or enantiomer thereof; a pharmaceutically-acceptable salt, hydrate, or biohydrolyzable ester, amide or imide thereof.

2. The compound of Claim 1 wherein R3 is hydroxy, and X is



3. The compound of Claim 2 wherein each R9 is independently selected from the group consisting of hydrogen, C_1 to about C_4 alkanyl, C_2 to about C_6 alkenyl or alkynyl, and a C_3 to about C_6 fused or spirocycle alkyl ring; all such alkyl moieties being unsubstituted or substituted with from 1 to about 3 fluoro.

4. The compound of Claim 3 wherein:

(a) R1 is selected from the group consisting of C_3 to C_5 cycloalkanyl, methyl, ethyl, ethenyl, isopropyl, isopropenyl, isobutyl, isobutenyl, t-butyl, all such alkyl or cycloalkanyl moieties being unsubstituted or substituted with from 1 to 3 fluoro; and phenyl, unsubstituted or substituted with from 1 to 3 fluoro, or with one hydroxy in the 4-position;

(b) R5 is selected from the group consisting of hydrogen, hydroxy, amino, fluoro, chloro, bromo, and methyl, the methyl being unsubstituted or substituted with from 1 to 3 fluoro;

(c) R7 is attached to a ring carbon of X which is not adjacent to the ring nitrogen; and

(d) no more than two ring carbons of X have non-hydrogen R9's attached thereto.

5. The compound of Claim 4 wherein:

(a) R7 is amino which is attached to a ring carbon of X which is not adjacent to the ring N, the amino being unsubstituted or substituted with one or two C_1 to about C_3 alkanyl; or is C_1 to about C_3 alkanyl substituted with one amino;

(b) R9 is selected from the group consisting of hydrogen, C_1 to about C_4 alkanyl, C_2 to about C_6 alkenyl or alkynyl, and a C_3 to about C_6 spirocycle alkyl ring; all such alkyl moieties being unsubstituted or substituted with from 1 to about 3 fluoro.

6. The compound of Claim 5 wherein R8 is chloro.

7. The compound of Claim 4 wherein;

(a) R1 is selected from the group consisting of cyclopropyl, ethyl, phenyl substituted with 1 to 3 fluoro, and 4-hydroxyphenyl;

(b) R5 is selected from the group consisting of hydrogen, hydroxy, amino, and methyl;

(c) X comprises the piperidinyl ring;

(d) R7 is amino in the 3-position of the piperidinyl ring; and

(e) all R9 are hydrogen, or one non-hydrogen R9 is in the 4-position or 5-position of the piperidinyl ring.

8. The compound of Claim 7 wherein:

(a) R1 is cyclopropyl;

(b) R5 is hydrogen, and

(c) all R9 are hydrogen, or one non-hydrogen R9 is selected from the group consisting of methyl, ethyl, dimethyl, spirocyclopropyl, methoxy, 2-thienyl and 2-furyl.

9. The compound of Claim 8 wherein R8 is chloro.

10. The compound of Claim 4 wherein:

(a) R1 is selected from the group consisting of cyclopropyl, ethyl, phenyl substituted with 1 to 3 fluoro, and 4-hydroxyphenyl;

(b) R5 is selected from the group consisting of hydrogen, hydroxy, chloro, bromo, amino, and methyl, the methyl being unsubstituted or substituted with from 1 to 3 fluoro;

(c) when X comprises the piperidinyl ring, R7 is amino unsubstituted or substituted with one C_1 to C_3 alkanyl or two methyl; when X comprises the pyrrolidinyl ring, R7 is aminoalkanyl which is methyl or ethyl or isopropyl substituted with one amino unsubstituted or substituted with one methyl or ethyl or dimethyl.

11. The compound of Claim 10 wherein:

(a) R1 is cyclopropyl or ethyl, unsubstituted or substituted with from 1 to about 3 fluoro;

(b) R5 is selected from the group consisting of hydrogen, hydroxy, amino, and methyl;

(c) when X comprises the piperidinyl ring, R7 is amino or methylamino in the 3-position or 4-position of the ring; when X comprises the pyrrolidinyl ring, R7 is selected from the group consisting of aminomethyl, methylaminomethyl, 1-aminoethyl, 1-methylaminoethyl, 1-amino-1-methylethyl and 1-methylamino-1-methylethyl in the 3-position of the ring.

(d) all R9 are hydrogen or only one ring carbon of X has a non-hydrogen R9 attached thereto, such non-hydrogen R9 being selected from the group consisting of methyl, ethyl, dimethyl and spirocyclopropyl.

12. The compound of Claim 11 wherein X comprises the pyrrolidinyl ring.

13. The compound of Claim 12 wherein R1 is cyclopropyl, R5 is hydrogen, and all R9 are hydrogen.

14. The compound of Claim 13 wherein R8 is chloro.

15. A compound selected from the group consisting of:

7-[3R-(1S-aminoethylpyrrolidinyl)]-1-ethyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-aminoethylpyrrolidinyl)-1-(2-fluoroethyl)]-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-aminoethylpyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-methylaminoethylpyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-amino-methylethylpyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-methylamino-methylethylpyrrolidinyl)]1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-aminoethyl-5-methyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-aminoethyl-5,5-dimethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-aminomethylethyl-5,5-dimethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-methylaminoethyl-5,5-dimethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-methylaminomethylethyl-5,5-dimethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-aminoethyl-5-ethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-aminomethylethyl-5-ethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1S-methylaminoethyl-5-ethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-methylaminomethylethyl-5-ethyl-pyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3R-(1-amino-1-cyclopropyl-methylpyrrolidinyl)]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[6R-(1S-aminoethyl)-4-azaspiro[2.4]heptanyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[6R-(1S-methylaminoethyl)-4-azaspiro[2.4]heptanyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[6R-(1S-amino-methylethyl)-4-azaspiro[2.4]heptanyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[6R-(1S-methylamino-methylethyl)-4-azaspiro[2.4]heptanyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

or a pharmaceutically-acceptable salt thereof.

16. A compound selected from the group consisting of:

7-[3S-aminopiperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-methylaminopiperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-amino-4R-methyl-piperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-amino-5S-methyl-piperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-amino-5R-methyl-piperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-amino-4R-ethyl-piperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-amino-6,6-dimethyl-piperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[3S-amino-6-methyl-piperidinyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[7-amino-5-azaspiro[2.5]-octanyl]1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

7-[4-amino-6-azaspiro[2.5]-octanyl]-1-cyclopropyl-1,4-dihydro-8-chloro-6-hydroxy-4-oxo-3-quinolinecarboxylic acid;

or a pharmaceutically-acceptable salt thereof.

17. A pharmaceutical composition comprising:

(a) a safe and effective amount of a compound of Claim 1 or 14; and

(b) a pharmaceutically-acceptable excipient.

18. A method for preventing or treating microbial infection comprising administering to a host in need of such a treatment a safe and antimicrobially effective amount of a compound of Claim 1 or 14.